Institut Royal Météorologique

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RMIB GERB processing update

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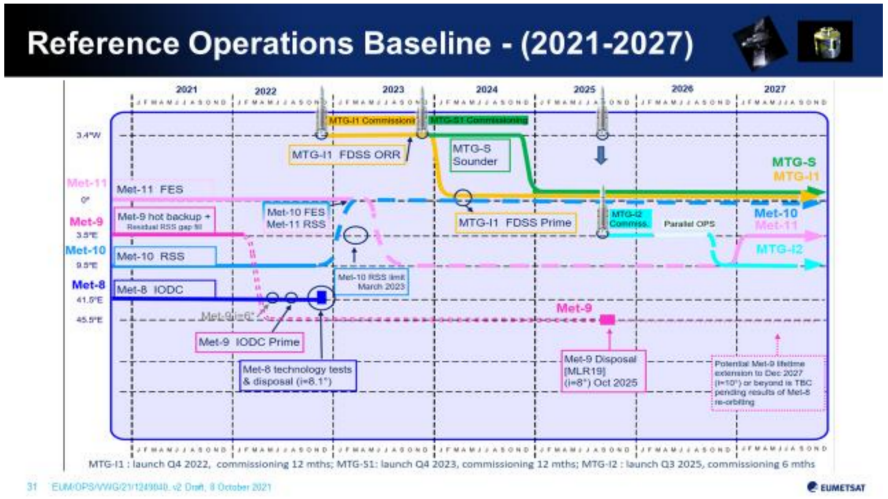
MSG/GERB instrument status



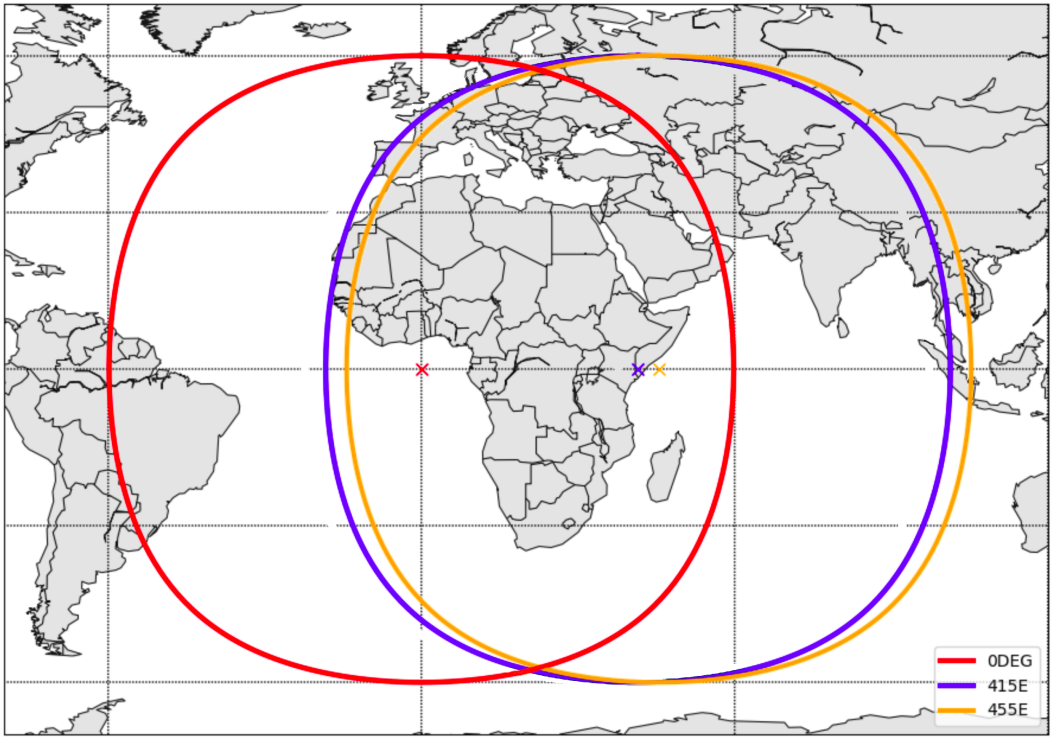
The next Meteosat Lifetime Review is planned for November 2022.

	nominal longitude	notes	radiometer	notes
Meteosat-8	41.5°E	will be decommissioned late 2022	GERB-2	end of service
Meteosat-9	45.5°E	IODC mission since July 2022	GERB-1	safe mode (orbital storage)
Meteosat-10	9.5°E	secondary Rapid Scan Service	GERB-3	safe mode (orbital storage)
Meteosat-11	0°	primary Full Earth Scan service	GERB-4	imaging

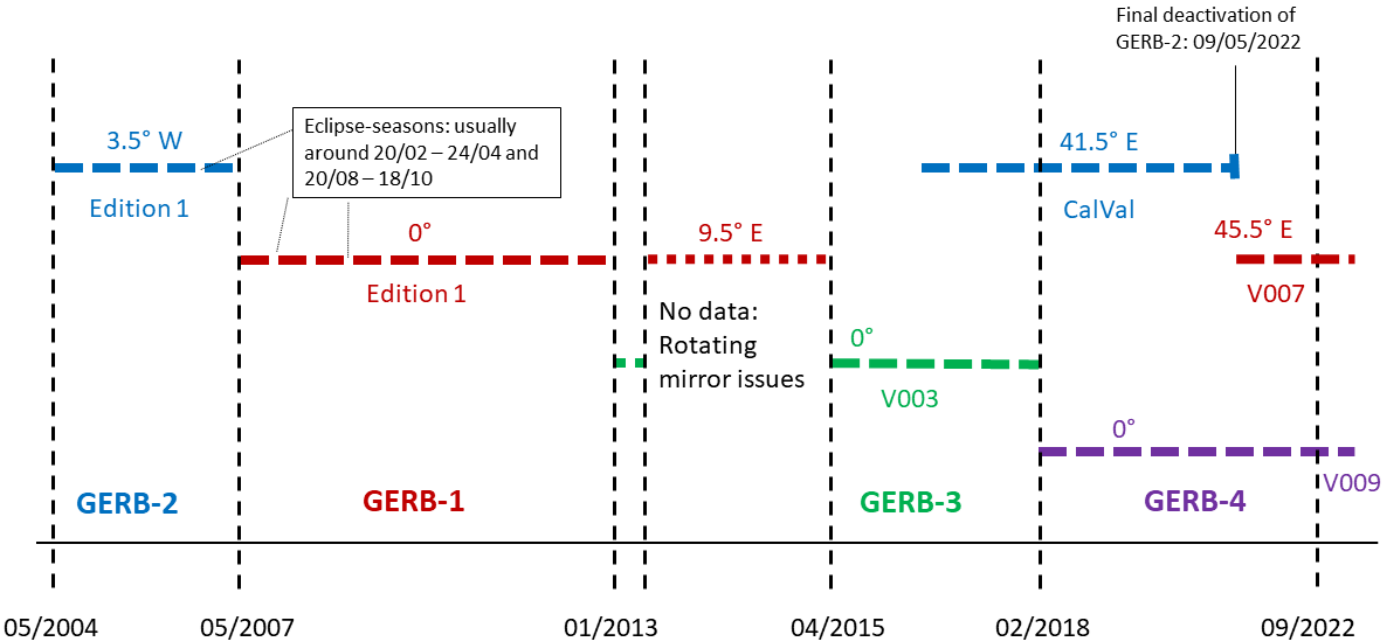
Current MSG Field of View

Position and field of view (±60° longitude and latitude from sub-satellite point).

- Since 2004, primary instrument at 0° longitude (red).
- 2016 – 2022, instrument at 41.5°E (blue).
- Since 2022, instrument at 45.5°E (yellow).



Current GERB L2 datasets



Current work: software/data consolidation

- The software has been fully consolidated: all former development branches have been merged into a single master branch. Changes yet to be applied to Near-Real-Time processing
- Currently cleaning up and consolidating the many data tables that are used in the processing
- Implemented direct ingestion of xRIT images and auxiliary information (headers with calibration info, orbital parameters, ...); allows reading Himawari xRIT data
- Automation: ongoing, focusing on the build process first

Unfortunately, none of this is user-visible.

Current work: GERB-4

A new dataset (V010) for the GERB-4 instrument is being generated.

Intended date range of the dataset: January 2018 to present (57 months and counting).

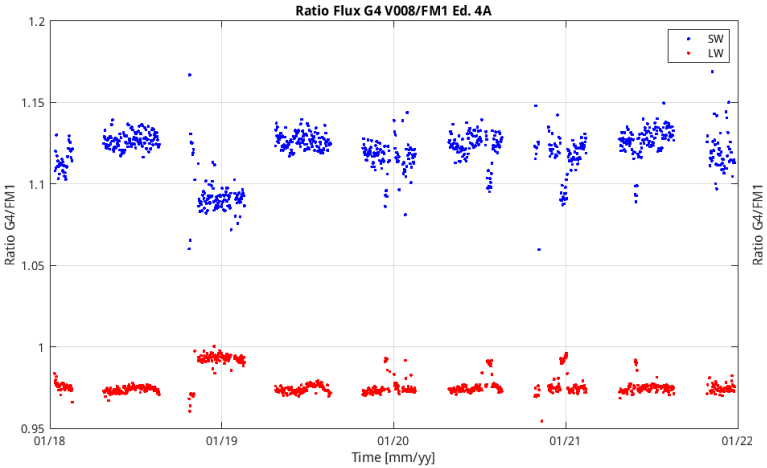
Currently complete: 11 January 2018 through 1 February 2021 (64% complete).

Problems addressed:

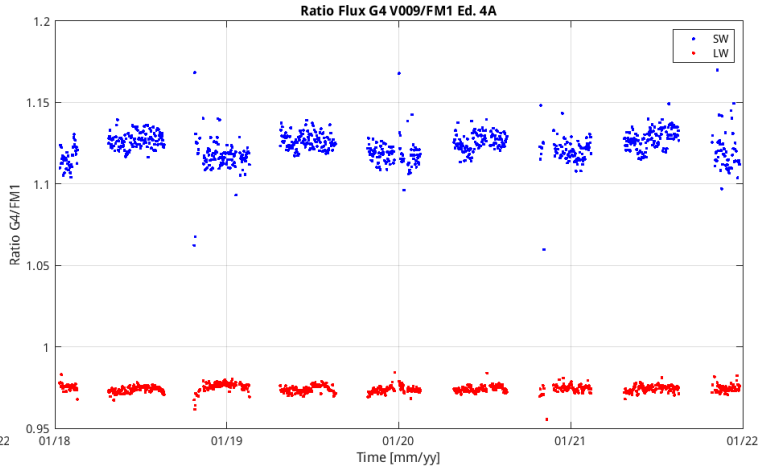
- quartz filter operating anomaly
- improved geolocation: column displacement in North/South direction

After a detailed analysis by RMIB/RAL/IC, GGSPS have reprocessed the complete GERB-4 record to L1.5N, and RMIB are reprocessing to L2. The first version intended for public release is being generated. (It will not be fully validated yet.)

GERB-4 QF Anomaly correction



before QF correction



after QF correction

Current L2 NRT Processing

The following streams are available as near-real-time products:

- GERB-1 (Indian Ocean) at 45.5°E since end of May 2022 (currently in safe mode until end of Sun avoidance)
- GERB-4 (prime) at 0°

Caution: Sun Avoidance in effect until the end of the month (imaging only 5 hours per day)

Other developments

GGSPS developments

- GGSPS are implementing a solution to address the different response of the GERB de-spin mirror faces in L1.5N (under test)
- GGSPS are working on the handling of anomalies in the GERB-4 data set (e.g., stray light, anomalous pixels)

These developments have not (yet) been ingested in the current RMIB L2 processing.

L3 products

The L3 products (monthly, daily, monthly mean diurnal cycle) are not official GERB products, but are available from the following two sources:

- available in CM SAF (generated by RMIB, up to 2015)
- Obs4MIPs (generated by RAL/IC, 2007-2012)

GERB L3 products are generated form GERB Edition-1 High Resolution.

RGP infrastructure

Relocated the hardware to a new server room with airconditioning and 24/7 monitoring.

We will rely more on services provided by the Institute in the future; this transition is ongoing.

Eumetsat multicast

Eumetsat are reserving the satellite link for users without access to a reliable broadband internet connection, and are pushing others to use the new multicast dissemination system.

→ we are transitioning to the multicast reception system

RGP infrastructure: hardware

Upgrade of storage space on file server

- redundant, distributed file system
- from 100 TB to 220 TB
- hosts GERB archive, SEVIRI archive, FTP server, CERES SSF Ed4, and much more auxiliary data
- In the future we can upgrade to 300 TB

Upgrade of compute servers

- file server head (tsunami) : 64 CPUs, 128 GB RAM, 160 TB disk space
- NRT server (typhoon) : 64 CPUs, 64 GB RAM, 45 TB disk space
- reprocessing server (tornado) : 32 CPUs, 64 GB RAM, 30 TB → 200 TB (4 TB → 16 TB disks in RAID-6)

Future funding

The GERB project is funded until 2024.

Negotiations with Eumetsat are ongoing about a possible extension to 2030. Any expressions of support would be much appreciated!

Summary and outlook

- Presented an overview of the current status of RMIB GERB Processing
- RMIB is working behind the scenes on a big update of processing, to make it traceable & reproducible
- A first version of GERB-4 L2 data (2018-2022) is being generated

Thank you!